

## REMARKS

Claims 1-37 were examined and rejected. Claims 38-48 have been previously been canceled. The Specification and drawings were also objected to. Applicants amend claims 1, 18, 30, and 31; Figures 1A, 1B, and 1C; and paragraphs [0006] and [0007] of the Specification. Applicants submit that no new matter has been added herein. Applicants respectfully request reconsideration of claims 1-37 as amended in view of at least the following remarks.

### **I. Drawings**

Figures 1A-1C are objected to by the Patent Office under MPEP § 608.02(g) because they do not include the legend "Prior Art". Applicants submit Replacement Figures 1A-1C incorporating the term "Prior Art" as a legend. Hence, Applicants respectfully request the Patent Office withdraw the objection above to the figures.

### **II. Specification**

The Patent Office objects to the disclosure because pages 3-4 include numbers 283, 284, 285, and 286 that should read 182, 183, 184, 185, and 186, respectively. Applicants amend paragraphs [0006] and [0007] of the Specification to update features 281 through 286 to appropriate features numbers 181 through 186, respectively. Hence, Applicants respectfully request the Patent Office withdraw the objection above to the Specification.

### **III. Claims Rejected Under 35 U.S.C. § 102**

The Patent Office rejects claims 1-9, 14, 16-18, and 20-37 under 35 U.S.C. § 102(b) as being anticipated by WO 02/067014 to Harel et al. (Harel). It is axiomatic that to be anticipated, every limitation of a claim must be disclosed within a single reference.

Applicants respectfully disagree with the rejection above of claim 1, as amended, for at least the reason that the cited references do not disclose a photodetector comprising a heterojunction formed of two semiconductor materials, being halides, and one or more of the first and second semiconductor materials forming a film comprising attached halide particles extending along

the heterojunction, as required by amended claim 1. According to claim 1, for example, one of the two materials that form the heterojunction may be a film having halide particles attached to each other within the film extending parallel to and along the junction. Such a film may be formed by various techniques including chemical vapor deposition (CVD), sputter, and ion beam deposition (e.g., as noted in paragraph 35 of the Applicants' specification as filed). The film having attached halide particles claimed in claim 1 excludes only films of particle-in-binder (PIB) material.

Harel teaches producing wide band gap semiconductor particle-in-binder (PIB) composite detectors having particulate semiconductors combined with polymeric binders. (See page 4, lines 1-3) Specifically, Harel describes grains of mercuric iodide powder mixed with a binder, such as acrylic, ester derivatives, rubber, polymers, etc. (See page 19-20, lines 6-7) The material is mixed thoroughly to wet all of the particles of mercuric iodide powder and to obtain a homogenous mixture (see page 20, lines 6-7) which is then applied to an adhesive coated substrate by screen printing (S.P.) die pressing, doctor blade, slot coater, or Mayer rod (see page 20, lines 8-16; page 14, lines 9-11; and page 15, lines 15-18). It can be appreciated that the particles of mercuric iodide powder, wet with the binder in a homogenous mixture, will rarely be attached to each other, and thus do not describe halide particles attached to each other extending along the junction.

Consequently, the Patent Office has not identified and Applicants are unable to find any description in Harel of a film having attached halide particles extending along a heterojunction, as required by amended claim 1. Hence, Applicants respectfully request the Patent Office withdraw the rejection of claim 1 above.

Applicants submit that dependent claims 2-9, 14, 16-18, and 20-29, being dependent upon allowable base 1, as amended, are patentable over the cited references for at least the reasons explained above. Thus, Applicants respectfully request that the Patent Office withdraw the rejection of dependent claims 2-9, 14, 16-18, and 20-29 as being unpatentable over the cited references.

Next, Applicants respectfully disagree with the rejection above and submit that independent claims 30 and 31, as amended, are patentable over the cited references for at least the reason that the cited references does not describe a first semiconductor material and a second semiconductor material coupled to the first semiconductor material at least one of which comprises a substantially solid phase film, as required by those claims. According to claims 30 and 31, for example, the first film of semiconductor material may be a film of one type of semiconductor material particles attached to each other substantially in a solid phase. Such a film may be formed by various techniques including chemical vapor deposition (CVD), sputter, and ion beam deposition (e.g., as noted in paragraph 35 of the Applicants' specification as filed). The film having attached halide particles claimed in claims 30 and 31 excludes only films of particle-in-binder (PIB) material.

As noted above, Harel describes a particle-in-binder material including mercuric iodide powder thoroughly wet with a binder to obtain a homogenous mixture of powder particles and binder.

Consequently, the Patent Office has not identified and Applicants are unable to find any description in Harel of a film of semiconductor material substantially in a solid phase, as required by independent claims 30, and 31. Hence, for at least this reason, Applicants respectfully request that the Patent Office withdraw the rejection of independent claims 30 and 31, as amended.

Applicants submit that dependent claims 32-37, being dependent upon allowable base claims 30 and 31, as amended, are patentable over the cited references for at least the reasons explained above. Thus, Applicants respectfully request that the Patent Office withdraw the rejection of dependent claims 32-37 above.

In addition, Applicants respectfully traverse the Patent Office's assertion that the claimed band gap of claims 16-17 is an inherent teaching of Harel, because of the material properties, and respectfully requests the Patent Office cite a reference in support of that position in accordance with MPEP § 2144.03. For

instance, the PIB materials of Harel may have band gaps other than those claimed in claims 16-17. Hence, for at least this second reason, Applicants respectfully request that Patent Office withdraw the rejection above of dependent claims 16-17.

#### IV. Claims Rejected Under 35 U.S.C. § 103

The Patent Office rejects claims 10-13, 15, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Harel. To render a claim obvious, all elements of that claim must be taught or suggested by at least one properly combined reference.

Applicants respectfully disagree with the rejection above and submit that dependent claims 10-13, 15, and 19, being dependent upon allowable base claim 1, as amended, are patentable over the cited references for at least the reasons explained above. Thus, Applicants respectfully request that the Patent Office withdraw the rejection to dependent claims 10-13, 15, and 19 above.

In addition, Applicants respectfully traverse the Patent Office's assertion that although Harel does not disclose the specific limitations of claims 10-13, 15, and 19, that those ranges would be obvious to a practitioner in the art from the thicknesses for lead iodide provided on page 31 and for an embodiment including mercury iodide, but not lead iodide on page 29 and requests that the Patent Office cite a reference in support of that position in accordance with MPEP § 2144.03. For at least this additional reason, Applicants respectfully request that the Patent Office withdraw the rejection above of the dependent claims 10-13, 15, and 19.

## CONCLUSION

In view of the foregoing, it is believed that all claims now pending patentably define the subject invention over the prior art of record and are in condition for allowance, and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17. If a telephone interview would expedite the prosecution of this Application, the Examiner is invited to contact the undersigned at (310) 207-3800.

Respectfully submitted,

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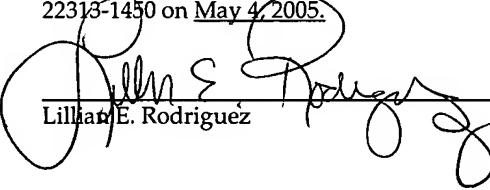
Date: 5/4/05

  
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### CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail with sufficient postage in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313-1450 on May 4, 2005.

  
Lillian E. Rodriguez

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